

**IN THE DRAWINGS:**

The drawings are objected to under 37 C.F.R. § 1.83(a). The Office Action indicates that the drawings must show every feature of the invention specified in the claims. Therefore, the three-layered catheter device used with the flexible hollow tube body must be shown or the feature(s) cancelled from the claim(s). Claim 12 has been cancelled to overcome this objection.

Further, the Office Action alleges that the helical grooves claimed in claim 10 are not shown in the drawings. Applicants respectfully submit herewith under separate cover one (1) sheet of replacement drawings showing Figs. 2 and 3, which label the previously shown, but unlabeled, helical grooves provided inside the flexible tube body as recited in claim 10.

**REMARKS**

**Summary of the Office Action**

The drawings are objected to under 37 C.F.R. § 1.83(a).

Claim 12 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,516,972 to Samson (“Samson”) in view of U.S. Patent No. 3,028,720 to Houk (“Houk”) and further in view of U.S. Patent No. 5,653,696 to Shiber (“Shiber”).

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Samson in view of Houk in view of Shiber and further in view of U.S. Patent No. 6,342,066 to Toro (“Toro”).

**Summary of the Response to the Office Action**

Claims 10-11 are pending for consideration. Claims 1-9 and 12 have been cancelled. Applicants concurrently submit herewith a Submission of Replacement Drawings.

**Drawing Objections**

The drawings stand objected to under 37 C.F.R. § 1.83(a). Claim 12 has been cancelled to overcome the objection to the drawings.

Applicants concurrently submit herewith a Submission of Replacement Drawing. Specifically, Figs. 2 and 3 have been amended to label the previously shown, but unlabeled, helical grooves provided inside the flexible tube body as recited in claim 10.

**The Rejections under 35 U.S.C. § 112, Second Paragraph**

Claim 12 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 has been cancelled to overcome the objection.

**The Rejections under 35 U.S.C. § 103(a)**

Claims 10-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Samson in view of Houk and further in view of Shiber. Applicants respectfully traverse the rejection.

The Office Action states that “the ribbon 16 of flexible material as disclosed in Samson is capable of being austenitic stainless steel” and also alleges that Samson discloses “a flexible hollow tube body 11 formed by a plurality of stainless steel wires cylindrically stranded around an elongate core into a wire rope configuration... .” Samson teaches against using stainless steel wire. Speaking of stainless steel wire, Samson states that “the wire tends to be brittle and difficult to handle in the manufacturing process if made fine enough not to increase the thickness of the wall by an appreciable amount.” (Col. 1, lines 25-28.) Clearly, Samson is teaching a ribbon rather than a wire and mentions several possible materials for ribbon 16 (e.g., Kevlar, Aramid yarns, carbon, and boron), but no stainless steel or indeed any metal. Thus, Samson clearly does not teach “a plurality of austenitic stainless steel wires cylindrically stranded... .” as recited in claim 10.

Samson further discloses that the ribbon 16 is wound onto the inner liner or tubular member 12 in helical fashion and imbedded into the wall rather than being stranded to form a

flexible hollow tube as recited in claim 10. In Samson, the inner liner 12, filament 16, and outer jacket 26 are bonded together to form a unitary structure. (col. 3, lines 20-22.) In contrast, claim 10 requires that after cylindrically stranding the wire around the elongate core into a wire rope configuration with the twisting machine, one end of the wire-rope configuration is rotated with the other end stretched taut by the weight depended underneath. At the same time, the wire-rope configuration is energized and heated by means of the electrical resistance of the wire. Afterwards, the elongate core is withdrawn to form the wire-stranded hollow tube structure which is combined into the catheter as a flexible hollow tube body.

The advantage of not winding the wire around a mandrel is that the work hardening layer of the wire is equal in all directions rather than developing on only one side of the wire. The electrical heat resistor removes the residual stresses from the working process. The reason the austenitic stainless steel wires are heated is that the martensitic stainless steel exhibits a quench-hardened property, and the ferritic stainless steel exhibits a brittleness at 450 C.

The chuck of Houk is used for testing the twist characteristics of yarn. According to Houk, a laboratory twisting apparatus is normally employed in certain laboratory control and experimental work in which it is desired to determine the effect of a given number of twists on the length of yarn cord under tension, or to study the effect on length by removal of a certain amount of twist from previously twisted yarn cord. In Houk, a rotatable chuck 18 is adapted for rotation and to which the ends of one or more strands of yarn can be secured independently. For this purpose, one end of the test cord 20 is secured to the rotatable chuck 18, and the other end of the test cord 20 is supported through the track 2 under the tension resulting from the weight 22. In contrast, claim 1 requires that the wire-rope be helically stranded, while at the same time

applying a tension to the wire-rope by means of the weight, and electrical resistance heating the wire rope before pulling out the elongate core.

The Office Action asserts that tubular blades 22 and 102 of Shiber have an outwardly arcuated in cross section blade edge as recited in claim 10. However, the cross section of tubular blades 22 and 102 of Shiber clearly do not meet this requirement of claim 10 because the sides of those blades are straight rather than arcuate.

The Office Action asserts that continuous passage 25 of Shiber corresponds to the helical grooves inside the flexible tube body to carry away hard clot powder as recited in claim 10. However, Shiber does not teach that continuous passage 25 is helical or a groove, and does teach that suction is used to remove cut material rather than the helical grooves recited in claim 10. Further, Shiber does not disclose cylindrical strands forming a tube as recited in claim 10. Moreover, Shiber's knife-edge circle front (Fig. 6) does not have a structure in which a blade edge diametrically decreases progressively as approaching forward, and the blade edge of the knife-edge circle front is outwardly arcuated in cross section.

For at least the above reasons, Applicants respectfully request that the rejection of claims 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Samson in view of Houk and further in view of Shiber be withdrawn.

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Samson in view of Houk in view of Shiber and further in view of U.S. Patent No. 6,342,066 to Toro ("Toro"). The cancellation of claim 12 renders the rejection moot.

Applicants respectfully submit that claims 10-12 are in condition for allowance. Early allowance of claims 10-12 is earnestly solicited.

**CONCLUSION**

In view of the foregoing, Applicants respectfully request reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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